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<150> PCT/US99/29989

<151> 1999-12-17

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Met Asn Ile Tyr Asn Leu Ile Ala Ile Ile Arg Asp Gln Ile Lys His
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Glu Thr Leu Val Gly Thr Pro Tyr Tyr Met Ser Pro Glu Leu Cys Gln
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Ile Phe Glu Leu Leu Thr Leu Lys Arg Thr Phe Asp Ala Thr Asn Pro
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 <213> Mus sp.

<400> 5
 ccggtggatg tggaatgtgt g 21

<210> 6
 <211> 22
 <212> DNA
 <213> Mus sp.

<400> 6
 caaagccaag gttcattcgg tg 22

<210> 7
 <211> 22
 <212> DNA
 <213> Mus sp.

<400> 7
 gccctgaatg aactgcagga cg 22

<210> 8
 <211> 22
 <212> DNA
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<400> 8
 cacgggtagc caacgctatg tc 22

<210> 9
 <211> 21
 <212> DNA
 <213> Mus sp.

 <400> 9
 ctccgcttc cagcactc g 21

 <210> 10
 <211> 21
 <212> DNA
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 <400> 10
 ctcaatggcc tcagacgcca g 21

 <210> 11
 <211> 20
 <212> DNA
 <213> Homo sapiens

 <400> 11
 gcctttggac aagcacacac 20

 <210> 12
 <211> 19
 <212> DNA
 <213> Homo sapiens

 <400> 12
 ctccttcagc tcctgggcc 19

 <210> 13
 <211> 30
 <212> DNA
 <213> Homo sapiens

 <400> 13
 cgagctgctc tatagactgc tgggtagtcc 30

 <210> 14
 <211> 30
 <212> DNA
 <213> Homo sapiens

 <400> 14
 taacagaggt ggcttatgag tattttctcc 30

 <210> 15
 <211> 20
 <212> DNA

<213> Homo sapiens

<400> 15

aaaccacaag aaggtggctg

20

<210> 16

<211> 22

<212> DNA

<213> Homo sapiens

<400> 16

aggtgaagcg gctgtccac ga

22

<210> 17

<211> 22

<212> DNA

<213> Homo sapiens

<400> 17

ctccttcagc tctgggcca ca

22

<210> 18

<211> 821

<212> PRT

<213> Homo sapiens

<400> 18

Met Ala Ala Glu Glu Val Leu Gln Thr Val Asp His Tyr Lys Thr Glu
1 5 10 15

Ile Glu Arg Leu Thr Lys Glu Leu Thr Glu Thr Thr His Glu Lys Ile
20 25 30

Gln Ala Ala Glu Tyr Gly Leu Val Val Leu Glu Glu Lys Leu Thr Leu
35 40 45

Lys Gln Gln Tyr Asp Glu Leu Glu Ala Glu Tyr Asp Ser Leu Lys Gln
50 55 60

Glu Leu Glu Gln Leu Lys Glu Ala Phe Gly Gln Ser Phe Ser Ile His
65 70 75 80

Arg Lys Val Ala Glu Asp Gly Glu Thr Arg Glu Glu Thr Leu Leu Gln
85 90 95

Glu Ser Ala Ser Lys Glu Ala Tyr Tyr Leu Gly Lys Ile Leu Glu Met
100 105 110

Gln Asn Glu Leu Lys Gln Ser Arg Ala Val Val Thr Asn Val Gln Ala
115 120 125

Glu Asn Glu Arg Leu Thr Ala Val Val Gln Asp Leu Lys Glu Asn Asn
130 135 140

Glu Met Val Glu Leu Gln Arg Ile Arg Met Lys Asp Glu Ile Arg Glu
145 150 155 160

Tyr Lys Phe Arg Glu Ala Arg Leu Leu Gln Asp Tyr Thr Glu Leu Glu
165 170 175

Glu Glu Asn Ile Thr Leu Gln Lys Leu Val Ser Thr Leu Lys Gln Asn
180 185 190

Gln Val Glu Tyr Glu Gly Leu Lys His Glu Ile Lys Arg Phe Glu Glu
195 200 205

Glu Thr Val Leu Leu Asn Ser Gln Leu Glu Asp Ala Ile Arg Leu Lys
210 215 220

Glu Ile Ala Glu His Gln Leu Glu Glu Ala Leu Glu Thr Leu Lys Asn
225 230 235 240

Glu Arg Glu Gln Lys Asn Asn Leu Arg Lys Glu Leu Ser Gln Tyr Ile
245 250 255

Ser Leu Asn Asp Asn His Ile Ser Ile Ser Val Asp Gly Leu Lys Phe
260 265 270

Ala Glu Asp Gly Ser Glu Pro Asn Asn Asp Asp Lys Met Asn Gly His
275 280 285

Ile His Gly Pro Leu Val Lys Leu Asn Gly Asp Tyr Arg Thr Pro Thr
290 295 300

Leu Arg Lys Gly Glu Ser Leu Asn Pro Val Ser Asp Leu Phe Ser Glu
305 310 315 320

Leu Asn Ile Ser Glu Ile Gln Lys Leu Lys Gln Gln Leu Met Gln Val
325 330 335

Glu Arg Glu Lys Ala Ile Leu Leu Ala Asn Leu Gln Glu Ser Gln Thr
340 345 350

Gln Leu Glu His Thr Lys Gly Ala Leu Thr Glu Gln His Glu Arg Val
355 360 365

His Arg Leu Thr Glu His Val Asn Ala Met Arg Gly Leu Gln Ser Ser
370 375 380

Lys Glu Leu Lys Ala Glu Leu Asp Gly Glu Lys Gly Arg Asp Ser Gly
385 390 395 400

Glu Glu Ala His Asp Tyr Glu Val Asp Ile Asn Gly Leu Glu Ile Leu
405 410 415

Glu Cys Lys Tyr Arg Val Ala Val Thr Glu Val Ile Asp Leu Lys Ala
420 425 430

Glu Ile Lys Ala Leu Lys Glu Lys Tyr Asn Lys Ser Val Glu Asn Tyr
435 440 445

Thr Asp Glu Lys Ala Lys Tyr Glu Ser Lys Ile Gln Met Tyr Asp Glu
450 455 460

Gln Val Thr Ser Leu Glu Lys Thr Thr Lys Glu Ser Gly Glu Lys Met
465 470 475 480

Ala His Met Glu Lys Glu Leu Gln Lys Met Thr Ser Ile Ala Asn Glu
485 490 495

Asn His Ser Thr Leu Asn Thr Ala Gln Asp Glu Leu Val Thr Phe Ser
500 505 510

Glu Glu Leu Ala Gln Leu Tyr His His Val Cys Leu Cys Asn Asn Glu
515 520 525

Thr Pro Asn Arg Val Met Leu Asp Tyr Tyr Arg Gln Ser Arg Val Thr
530 535 540

Arg Ser Gly Ser Leu Lys Gly Pro Asp Asp Pro Arg Gly Leu Leu Ser
545 550 555 560

Pro Arg Leu Ala Arg Arg Gly Val Ser Ser Pro Val Glu Thr Arg Thr
565 570 575

Ser Ser Glu Pro Val Ala Lys Glu Ser Thr Glu Pro Ser Lys Glu Pro
580 585 590

Ser Pro Thr Lys Thr Pro Thr Ile Ser Pro Val Ile Thr Ala Pro Pro
595 600 605

Ser Ser Pro Val Leu Asp Thr Ser Asp Ile Arg Lys Glu Pro Met Asn
610 615 620

Ile Tyr Asn Leu Asn Ala Ile Ile Arg Asp Gln Ile Lys His Leu Gln
625 630 635 640

Lys Ala Val Asp Arg Ser Leu Gln Leu Ser Arg Gln Arg Ala Ala Ala
645 650 655

Arg Glu Leu Ala Pro Met Ile Asp Lys Asp Lys Glu Ala Leu Met Glu
660 665 670

Glu Ile Leu Lys Leu Lys Ser Leu Leu Ser Thr Lys Arg Glu Gln Ile
675 680 685

Ala Thr Leu Arg Ala Val Leu Lys Ala Asn Lys Gln Thr Ala Glu Val
690 695 700

Ala Leu Ala Asn Leu Lys Asn Lys Tyr Glu Asn Glu Lys Ala Met Val
705 710 715 720

Thr Glu Thr Met Thr Lys Leu Arg Asn Glu Leu Lys Ala Leu Lys Glu
725 730 735

Asp Ala Ala Thr Phe Ser Ser Leu Arg Thr Met Phe Ala Thr Arg Cys
740 745 750

Asp Glu Tyr Val Thr Gln Leu Asp Glu Met Gln Arg Gln Leu Ala Ala
755 760 765

Ala Glu Asp Glu Lys Lys Thr Leu Asn Thr Leu Leu Arg Met Ala Ile
770 775 780

Gln Gln Lys Leu Ala Leu Thr Gln Arg Leu Glu Asp Leu Glu Phe Asp

785

790

795

800

His Glu Gln Ser Arg Arg Ser Lys Gly Lys Leu Gly Lys Ser Lys Ile
 805 810 815

Gly Ser Pro Lys Val
 820

<210> 19
 <211> 868
 <212> PRT
 <213> Homo sapiens

<400> 19

Asn Thr His Leu Glu Ala Gln Leu Gln Lys Ala Glu Glu Ala Gly Ala
 1 5 10 15

Glu Leu Gln Ala Asp Leu Arg Asp Ile Gln Glu Glu Lys Glu Glu Ile
 20 25 30

Gln Lys Lys Leu Ser Glu Ser Arg His Gln Gln Glu Ala Ala Thr Thr
 35 40 45

Gln Leu Glu Gln Leu His Gln Glu Ala Lys Arg Gln Glu Glu Val Leu
 50 55 60

Ala Arg Ala Val Gln Glu Lys Glu Ala Leu Val Arg Glu Lys Ala Ala
 65 70 75 80

Leu Glu Val Arg Leu Gln Ala Val Glu Arg Asp Arg Gln Asp Leu Ala
 85 90 95

Glu Gln Leu Gln Gly Leu Ser Ser Ala Lys Glu Leu Leu Glu Ser Ser
 100 105 110

Leu Phe Glu Ala Gln Gln Gln Asn Ser Val Ile Glu Val Thr Lys Gly
 115 120 125

Gln Leu Glu Val Gln Ile Gln Thr Val Thr Gln Ala Lys Glu Val Ile
 130 135 140

Gln Gly Glu Val Arg Cys Leu Lys Leu Glu Leu Asp Thr Glu Arg Ser
 145 150 155 160

Gln Ala Glu Gln Glu Arg Asp Ala Ala Ala Arg Gln Leu Ala Gln Ala
165 170 175

Glu Gln Glu Gly Lys Thr Ala Leu Glu Gln Gln Lys Ala Ala His Glu
180 185 190

Lys Glu Val Asn Gln Leu Arg Glu Lys Trp Glu Lys Glu Arg Ser Trp
195 200 205

His Gln Gln Glu Leu Ala Lys Ala Leu Glu Ser Leu Glu Arg Glu Lys
210 215 220

Met Glu Leu Glu Met Arg Leu Lys Glu Gln Gln Thr Glu Met Glu Ala
225 230 235 240

Ile Gln Ala Gln Arg Glu Glu Glu Arg Thr Gln Ala Glu Ser Ala Leu
245 250 255

Cys Gln Met Gln Leu Glu Thr Glu Lys Glu Arg Val Ser Leu Leu Glu
260 265 270

Thr Leu Leu Gln Thr Gln Lys Glu Leu Ala Asp Ala Ser Gln Gln Leu
275 280 285

Glu Arg Leu Arg Gln Asp Met Lys Val Gln Lys Leu Lys Glu Gln Glu
290 295 300

Thr Thr Gly Ile Leu Gln Thr Gln Leu Gln Glu Ala Gln Arg Glu Leu
305 310 315 320

Lys Glu Ala Ala Arg Gln His Arg Asp Asp Leu Ala Ala Leu Gln Glu
325 330 335

Glu Ser Ser Ser Leu Leu Gln Asp Lys Met Asp Leu Gln Lys Gln Val
340 345 350

Glu Asp Leu Lys Ser Gln Leu Val Ala Gln Asp Asp Ser Gln Arg Leu
355 360 365

Val Glu Gln Glu Val Gln Glu Lys Leu Arg Glu Thr Gln Glu Tyr Asn
370 375 380

Arg Ile Gln Lys Glu Leu Glu Arg Glu Lys Ala Ser Leu Thr Leu Ser
385 390 395 400

Leu Met Glu Lys Glu Gln Arg Leu Leu Val Leu Gln Glu Ala Asp Ser
405 410 415

Ile Arg Gln Gln Glu Leu Ser Ala Leu Arg Gln Asp Met Gln Glu Ala
420 425 430

Gln Gly Glu Gln Lys Glu Leu Ser Ala Gln Met Glu Leu Leu Arg Gln
435 440 445

Glu Val Lys Glu Lys Glu Ala Asp Phe Leu Ala Gln Glu Ala Gln Leu
450 455 460

Leu Glu Glu Leu Glu Ala Ser His Ile Thr Glu Gln Gln Leu Arg Ala
465 470 475 480

Ser Leu Trp Ala Gln Glu Ala Lys Ala Ala Gln Leu Gln Leu Arg Leu
485 490 495

Arg Ser Thr Glu Ser Gln Leu Glu Ala Leu Ala Ala Glu Gln Gln Pro
500 505 510

Gly Asn Gln Ala Gln Ala Gln Ala Gln Leu Ala Ser Leu Tyr Ser Ala
515 520 525

Leu Gln Gln Ala Leu Gly Ser Val Cys Glu Ser Arg Pro Glu Leu Ser
530 535 540

Gly Gly Gly Asp Ser Ala Pro Ser Val Trp Gly Leu Glu Pro Asp Gln
545 550 555 560

Asn Gly Ala Arg Ser Leu Phe Lys Arg Gly Pro Leu Leu Thr Ala Leu
565 570 575

Ser Ala Glu Ala Val Ala Ser Ala Leu His Lys Leu His Gln Asp Leu
580 585 590

Trp Lys Thr Gln Gln Thr Arg Asp Val Leu Arg Asp Gln Val Gln Lys
595 600 605

Leu Glu Glu Arg Leu Thr Asp Thr Glu Ala Glu Lys Ser Gln Val His

610	615	620
Thr Glu Leu Gln Asp Leu Gln Arg Gln Leu Ser Gln Asn Gln Glu Glu 625 630 635 640		
Lys Ser Lys Trp Glu Gly Lys Gln Asn Ser Leu Glu Ser Glu Leu Met 645 650 655		
Glu Leu His Glu Thr Met Ala Ser Leu Gln Ser Arg Leu Arg Arg Ala 660 665 670		
Glu Leu Gln Arg Met Glu Ala Gln Gly Glu Arg Glu Leu Leu Gln Ala 675 680 685		
Ala Lys Glu Asn Leu Thr Ala Gln Val Glu His Leu Gln Ala Ala Val 690 695 700		
Val Glu Ala Arg Ala Gln Ala Ser Ala Ala Gly Ile Leu Glu Glu Asp 705 710 715 720		
Leu Arg Thr Ala Arg Ser Ala Leu Lys Leu Lys Asn Glu Glu Val Glu 725 730 735		
Ser Glu Arg Glu Arg Ala Gln Ala Leu Gln Glu Gln Gly Glu Leu Lys 740 745 750		
Val Ala Gln Gly Lys Ala Leu Gln Glu Asn Leu Ala Leu Leu Thr Gln 755 760 765		
Thr Leu Ala Glu Arg Glu Glu Glu Val Glu Thr Leu Arg Gly Gln Ile 770 775 780		
Gln Glu Leu Glu Lys Gln Arg Glu Met Gln Lys Ala Ala Leu Glu Leu 785 790 795 800		
Leu Ser Leu Asp Leu Lys Lys Arg Asn Gln Glu Val Asp Leu Gln Gln 805 810 815		
Glu Gln Ile Gln Glu Leu Glu Lys Cys Arg Ser Val Leu Glu His Leu 820 825 830		
Pro Met Ala Val Gln Glu Arg Glu Gln Lys Leu Thr Val Gln Arg Glu 835 840 845		

Gln Ile Arg Glu Leu Glu Lys Asp Arg Glu Thr Gln Arg Asn Val Leu
850 855 860

Glu His Gln Leu
865

<210> 20
<211> 8
<212> PRT
<213> Homo sapiens

<400> 20

Asp Tyr Lys Asp Asp Asp Asp Lys
1 5

<210> 21
<211> 26
<212> PRT
<213> Homo sapiens

<400> 21

Pro Asp Val Ala Ser Leu Arg Gln Gln Val Glu Ala Leu Gln Gly Gln
1 5 10 15

Val Gln His Leu Gln Ala Ala Phe Ser Gln Tyr
20 25

<210> 22
<211> 33
<212> PRT
<213> Homo sapiens

<400> 22

Arg Met Lys Gln Ile Glu Asp Lys Ile Glu Glu Ile Leu Ser Lys Ile
1 5 10 15

Tyr His Ile Glu Asn Glu Ile Ala Arg Ile Lys Lys Leu Ile Gly Glu
20 25 30

Arg